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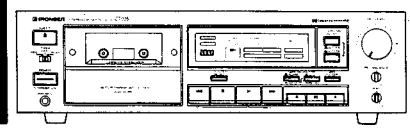
Service Manual



ORDER NO.
ARP1728

STEREO CASSETTE DECK

CT-335
CT-335-S

CT-335 AND CT-335-S HAVE FOUR VERSIONS :

Type	Applicable model		Power requirement	Export destination
	CT-335	CT-335-S		
HEM	O	O	AC220V, 240V (switchable) *	European continent
HB	O	—	AC220V, 240V (switchable) *	United Kingdom
HP	O	—	AC220V, 240V (switchable) *	Australia
SD	O	—	AC110V, 120V-127V, 220V, 240V (switchable)	Kingdom of Saudi Arabia and general market

*Change the primary wiring of the power transformer.

- **This manual is applicable to the CT-335/HEM, HB, HP, SD and CT-335-S/HEM types.**
- **For the CT-335/HB, HP, SD and CT-335-S/HEM types, refer to pages 33, 34.**
- **The CT-335-S is the same as the CT-335 except for the color.**
- **Ce manuel pour le service comprend les explications en français de réglage.**
- **Este manual de servicio trata del método ajuste escrito en español.**

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CT-335

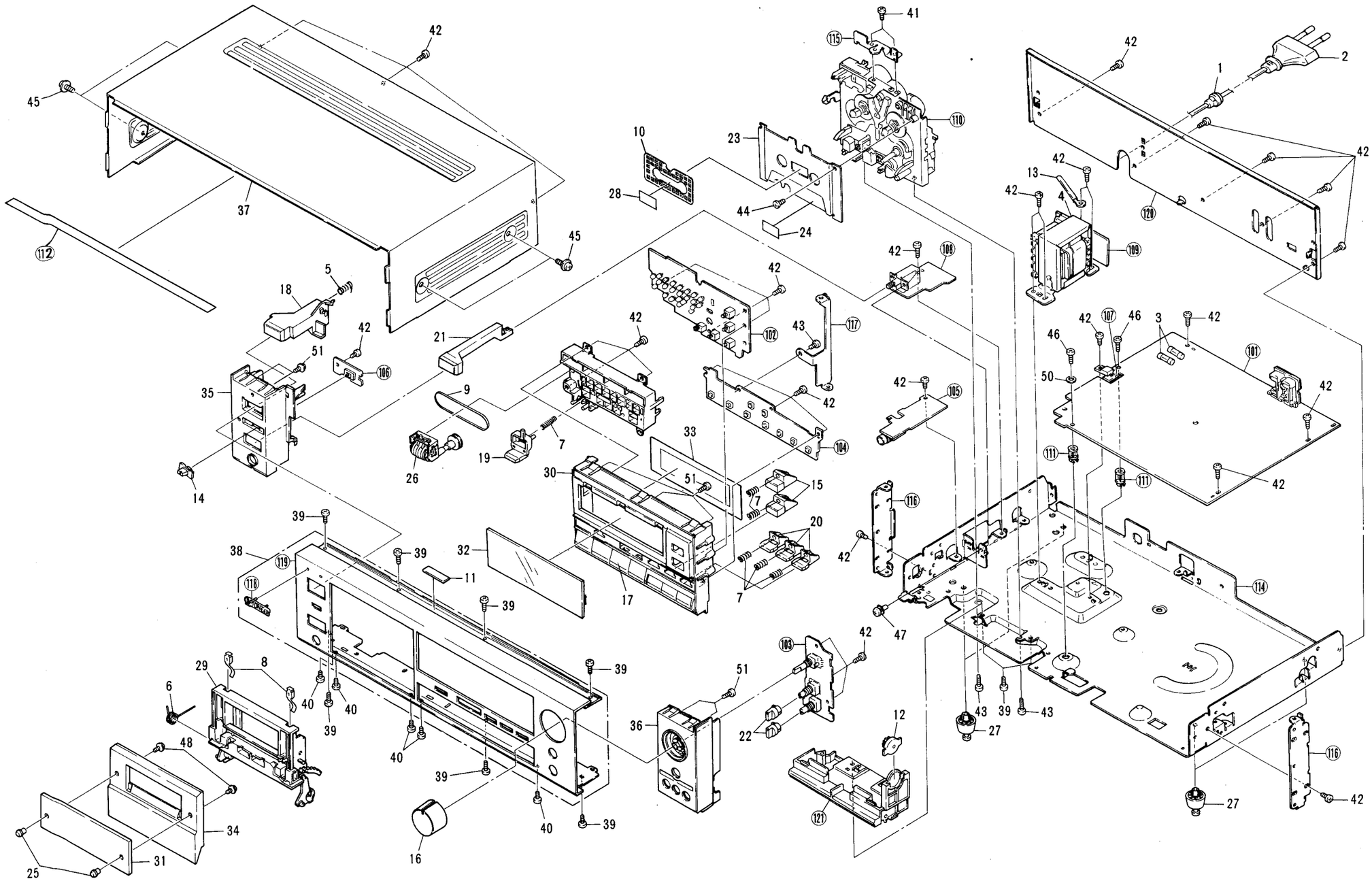
1. EXPLODED VIEWS AND PARTS LIST

NOTES :
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

1.1 Parts List of Exterior

Mark	No.	Part No.	Description
⚠	1	CM−22B	Strain relife
⚠	2	PDG1003	AC Power cord
⚠	3	REK−100	Fuse (FU301, FU302, 1A)
⚠	4	RTT1050	Power transformer (T1)
	5	RBH1008	Spring
	6	RBH1134	Door spring (L)
	7	RBH1146	Push spring
	8	RBK1013	Half pressure spring
	9	REB−514	Counter belt
	10	REB1038	Stabilizer (B)
	11	REB1083	Rubber stabilizer
	12	REC1005	Damper assembly
	13	RNH−184	Cord stopper
	14	RAC−668	Slide knob (A) (TIMER)
	15	RAC1218	Dolby knob (DOLBY NR ON/OFF, B/C)
	16	RAC1221	VR knob (REC LEVEL)
	17	RAC1223	Operation knob (◂◂, ■, ▸, ●, ▮▮, ⏏)
	18	RAC1226	Eject knob (EJECT)
	19	RAC1228	Counter reset knob (RESET)
	20	RAC1230	Tape select knob (TAPE SELECTOR, MPX FILTER)
	21	RAC1240	Power button (POWER)
	22	RAC1337	Headphone knob (REC BALANCE, BIAS)
	23	RAH1234	Cassette plate
	24	RAH1341	Shield plate
	25	RAT1001	Screw
	26	RAW1023	Counter
	27	REC−369	Leg assembly
	28	REC−113	Remain display paper
	29	RNT1010	Door pocket
	30	RAH1240	Button panel
	31	RAH1244	Door lens
	32	RAH1246	Meter lens
	33	RAH1247	LED filter
	34	RAH1466	Door panel
	35	RNK1313	Eject mold
	36	RNK1315	VR escutcheon
	37	RXX1079	Bonnet
	38	RXX1181	Front panel assembly
	39	BBT30P060FZK	Screw
	40	BBZ26P080FZK	Screw
	41	BBZ30P040FMC	Screw
	42	BBZ30P080FZK	Screw
	43	BBZ30P100FMC	Screw
	44	BCT26P100FZK	Screw
	45	FBT40P080FZK	Screw
	46	IBZ30P150FCU	Screw
	47	PMA30P060FMC	Screw
	48	ATZ26P050FMC	Screw
	49		.....
	50	WA30W120R100	Washer
	51	ABZ30P080FMC	Screw
	101		Main unit
	102		Display unit
	103		VR unit
	104		Control SW unit
	105		Headphone unit
	106		Timer SW unit
	107		Transistor unit
	108		Power SW unit
	109		Transformer unit
	110		Mechanism nit
	111		PCB spacer
	112		Bonnet cushion
	113		.....
	114		Main chassis
	115		Machanism stay
	116		Side stay
	117		Center stay
	118		Name plate
	119		Front panel
	120		Rear panel
	121		Door fulcrum mold

Exterior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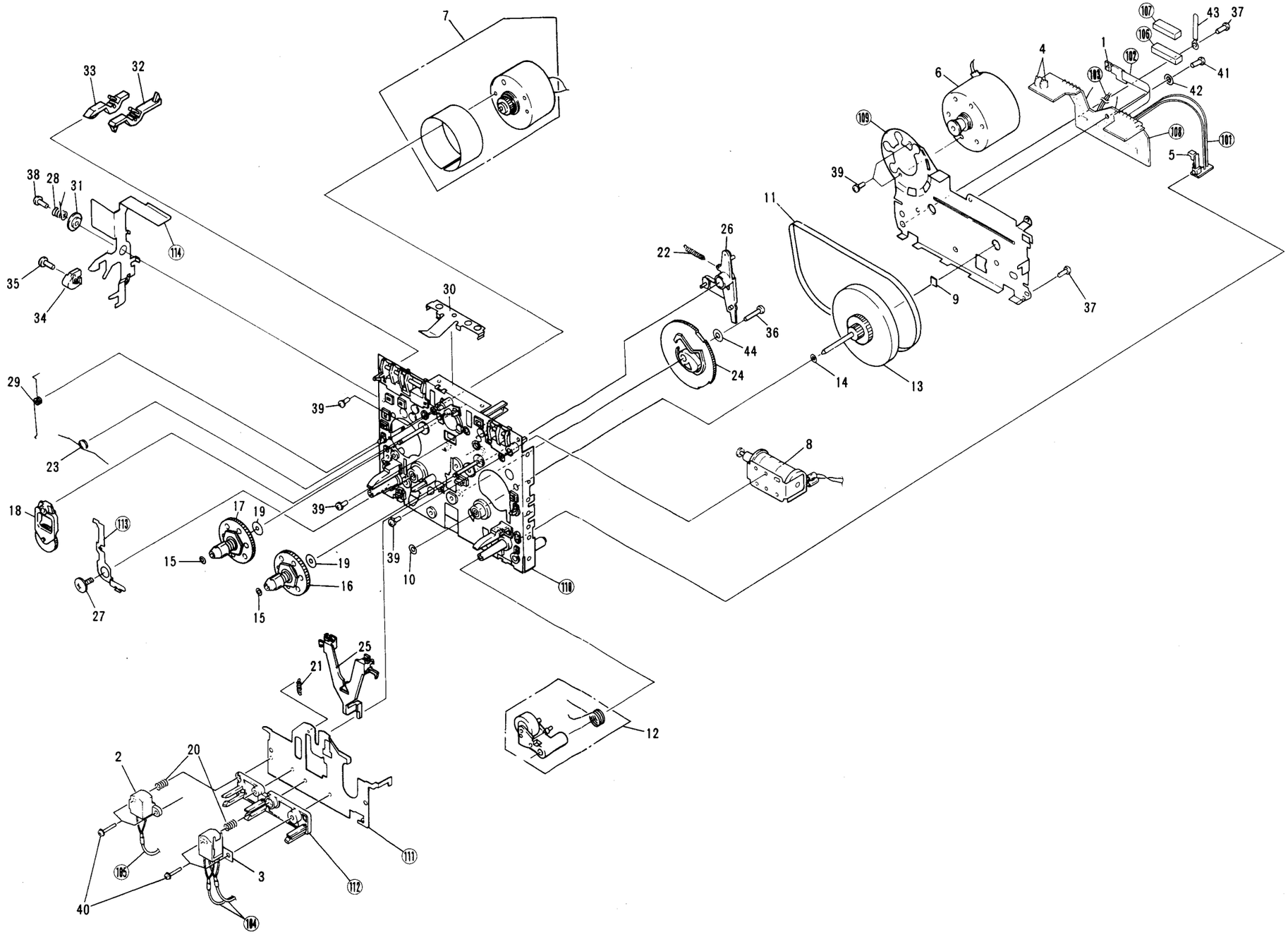
1.2 TAPE MECHANISM UNIT



Parts List of Tape MECHANISM Unit

Mark	No.	Part No.	Description
	1	GP2S04B	Photo reflector
	2	RPB1005	Erase head
	3	RPB1014	REC/PB head
	4	RSG1018	Push switch
	5	RSN1010	Leaf switch
	6	RXM−135	Capstan motor assembly
	7	RXM1020	Reeel motor assembly
⚠	8	RXP1007	Solenoid
	9	REC1002	Spacer
	10	RBF−030	Washer
	11	REB1053	Main belt
	12	RXA1183	Pinch roller assembly
	13	RXC−083	F/W flywheel assembly
	14	WA26D045D025	Washer
	15	RBF−057	Washer
	16	RXA1184	Take up reel assembly
	17	RXC−040	Reel assembly
	18	RXC−086	Idler assembly
	19	WA21D070D013	Washer
	20	RBH1076	Azimuth spring
	21	RBL−140	Head base spring
	22	RBH1151	Play arm spring
	23	RBL−145	Hold spring
	24	RNK1339	Cam gear (H−2)
	25	RNK1340	Hold lever (C)
	26	RNK1341	Play arm (F)
	27	RBA1048	Screw
	28	RBH1193	Eject lever spring (L)
	29	RBH1153	Eject prevention spring (L)
	30	RBK1002	Half hold spring
	31	RLB−558	Spacer
	32	RNK1337	REC detect lever
	33	RNK1338	Pack detect lever
	34	RNM−160	Hook
	35	PCZ20P040FMC	Screw
	36	PRZ20P130FMC	Screw
	37	PRZ26P080FMC	Screw
	38	RBA−094	Screw
	39	RBA1005	Screw with washer
	40	RBA1031	F lock screw
	41	RBA1049	Screw
	42	RBE1005	Screw
	43	RNH−184	Cord holder
	44	WA23F060M040	Washer
	101		Wire
	102		Jumper wire
	103		Jumper wire
	104		Head lead (6P)
	105		Head lead (2P)
	106		Connector (5P)
	107		Connector (7P)
	108		Connect assembly
	109		F/W blacket
	110		Shassis preparation parts
	111		Head base
	112		Head spacer
	113		Eject prevention arm (L)
	114		Eject arm (L)

2. ELECTRICAL PARTS LIST

NOTES :

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω	56×10^{1}	561	RD1/4PS 5 6 1 J
47k Ω	47×10^{3}	473	RD1/4PS 4 7 3 J
0.5 Ω	0R5		RN2H 0 R 5 K
1 Ω	010		RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	562×10^{1}	5621	RN1/4SR 5 6 2 1 F

Miscellaneous Parts

P. C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	Main unit	
	Display unit	
	VR unit	
	Control SW unit	
	Headphone unit	
	Timer SW unit	
	Transistor unit	
	Power SW unit	
	Transformer unit	

OTHERS

Mark	Symbol & Description	Part No.
⚠	Strain relife	CM−22B
⚠	AC power cord	PDG1003
⚠	FU301, FU302 Fuse (T1A/AC250V)	REK−100
⚠	T1 Power transformer	RTT1050
	Photo refrector	GP2S04B
	E head	RPB1005
	R/P head	RPB1014
	Push switch	RPG1018
	Leaf switch	RSN1010
	Reel motor assembly	RXM1020
	Capstan motor assembly	RXM−135
⚠	Solenoid	RXP1007

Main unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC301	BA335
	IC303	BA6109
	IC102	CX20187
	IC103, IC104, IC305	M5218L
	IC101	M5220L
	IC304	PD4149
	IC105	μ PC1297CA
	IC306	μ PC1330HA
	Q306, Q310, Q312, Q313, Q317, Q320	2SA1309A
	Q307, Q308	2SC3243
	Q302, Q304, Q305	2SC3246
	Q101−Q104, Q107−Q114, Q301, Q303, Q311, Q314, Q318, Q319, Q321−Q324	2SC3311A
	Q105, Q106, Q309	2SD1302
⚠	Q316	2SD1796
⚠	D315	MTZ5. 1B
	D313	MTZJ6.2C
⚠	D310	1B2C1−LC2
⚠	D309	1B2Z1−LC2
	D303	1SR35−100A
	D301, D302, D304−D308, D311 D312, D314, D316	1SS254

COILS AND FILTERS

Mark	Symbol & Description	Part No.
	L301 Oscillator coil	RTD1019
	L109, L110 Peaking coil	RTD1020
	L107, L108 Coil (10mH)	RTF1004
	L103−L106 Coil (19mH)	RTF1005
	L101, L102 MPX Filter	RTF1058

CAPACITORS

Mark	Symbol & Description	Part No.
	C187, C188	CCCSL101K500
	C103, C104	CEANL100M16
	C107, C108	CEANL101M10
	C157−C160, C307	CEASR10M50
	C137, C138, C171, C172	CEASR15M50
	C139, C140	CEASR22M50
	C135, C136, C310	CEASR47M50
	C117, C118, C123, C124, C153−C156, C175, C176	CEAS010M50
	C111, C112, C119, C120, C173, C174, C320, C331, C342, C345	CEAS100M50

Mark	Symbol & Description	Part No.
	C161, C162, C301, C306, C339, C355	CEAS101M25
	C335	CEAS221M35
	C334	CEAS222M35
	C343	CEAS222M6R3
	C302–C304, C315, C321, C324, C338	CEAS330M35
	C127, C128	CEAS331M16
	C341	CEAS332M16
	C149–C152, C169, C170, C312–C314, C337, C344, C346	CEAS4R7M50
	C147, C148, C179, C180, C326	CFTXA103J50
	C167, C168	CFTXA152J50
	C125, C126	CFTXA153J50
	C109, C110, C113, C114, C183, C184, C325	CFTXA223J50
	C131, C132, C327, C328	CFTXA332J50
	C121, C122, C133, C134	CFTXA472J50
	C165, C166	CFTXA562J50
	C145, C146, C163, C164	CFTXA682J50
	C141, C142	CFTXA683J50
	C193, C194	CFTXA822J50
	C309, C318, C322	CGCYX104K25
	C143, C144, C185, C186, C308	CGCYX473K25
	C189, C190	CKCYB681J500
	C319, C323, C340	CKCYF103Z50
	C305, C332, C333, C348–C350 C353–C360	CKCYF473Z50
	C105, C106, C330, C336	CKPUYB101K50
	C115, C116, C177, C178	CKPUYB102K50
	C191, C192	CKPUYB181K50
	C129, C130,	CKPUYB681K50
	C181, C182	CKPUYB821K50
	C329	CQPA153J100
	C101, C102	CQSA681J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR107, VR108 Semi-Fixed (15k)	VRTB6VS153
	VR103–VR106 Semi-Fixed (22k)	VRTB6VS223
⚠	R333	RS2LMF200J
	R343, R344, R358	RD½PMF□□□J
	R119, R120, R127, R128, R148, R154, R301, R304, R305, R329–R331, R346, R354, R359, R362–R364, R382, R383	RD¼PM□□□J
	Other resistors	RD⅙PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	JA303 Pin jack 4P	RKB1001
	X301 Ceramic resonator	VSS1014

Display unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC601, IC602	AN6882
	D601, D606, D614–D619	SEL4214S
	D602–D605, D607, D610–D613, D620–D623, D626–D628	LT4E4IC
	D631	1SR35–100A
	D629, D630	1SS254

SWITCHES

Mark	Symbol & Description	Part No.
	S601–S605 Push switch (DOLBY NR ON/OFF, DOLBY NR B/C, MPX FILTER, TAPE SELECTOR NORM/HIGH, TAPE SELECTOR CrO_2/METAL)	RSG–150

CAPACITORS

Mark	Symbol & Description	Part No.
	C601, C602	CEJA220M16
	C603	CKDYF473Z50

RESISTORS

Mark	Symbol & Description	Part No.
⚠	R619 (30 Ω)	RCN1018
	R617, R618	RD½PMF□□□J
	Other resistors	RD⅙PM□□□J

VR unit

RESISTORS

Mark	Symbol & Description	Part No.
	VR803 Variable resistor (5k–B BIAS)	RCV1007
	VR801 Variable resistor (100kB REC BALANCE)	RCV1010
	VR802 Variable resistor (50kA×2 REC LEVEL)	RCV1012
	R801, R802	RD⅙PM333J

Control SW unit

SWITCHES

Mark	Symbol & Description	Part No.
	S501, S502, S506–S510 Tact switch (⏏, ▶, ▶▶, ⏸, ■, ◀◀, ●)	RSG–155

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD⅙PM□□□J

Headphone unit

CAPACITOR

Mark	Symbol & Description	Part No.
	C401	CKCYF473Z50

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD⅙PM□□□J

OTHER

Mark	Symbol & Description	Part No.
	JA401 Headphone jack (PHONES)	RKN1002

Timer SW unit

SWITCH

Mark	Symbol & Description	Part No.
	S701 Slide switch (TIMER REC/PLAY)	RSH1014

Transistor unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
⚠	Q315	2SD1796

Power SW unit

SWITCH

Mark	Symbol & Description	Part No.
⚠	S901 Power switch (POWER)	RSA–069

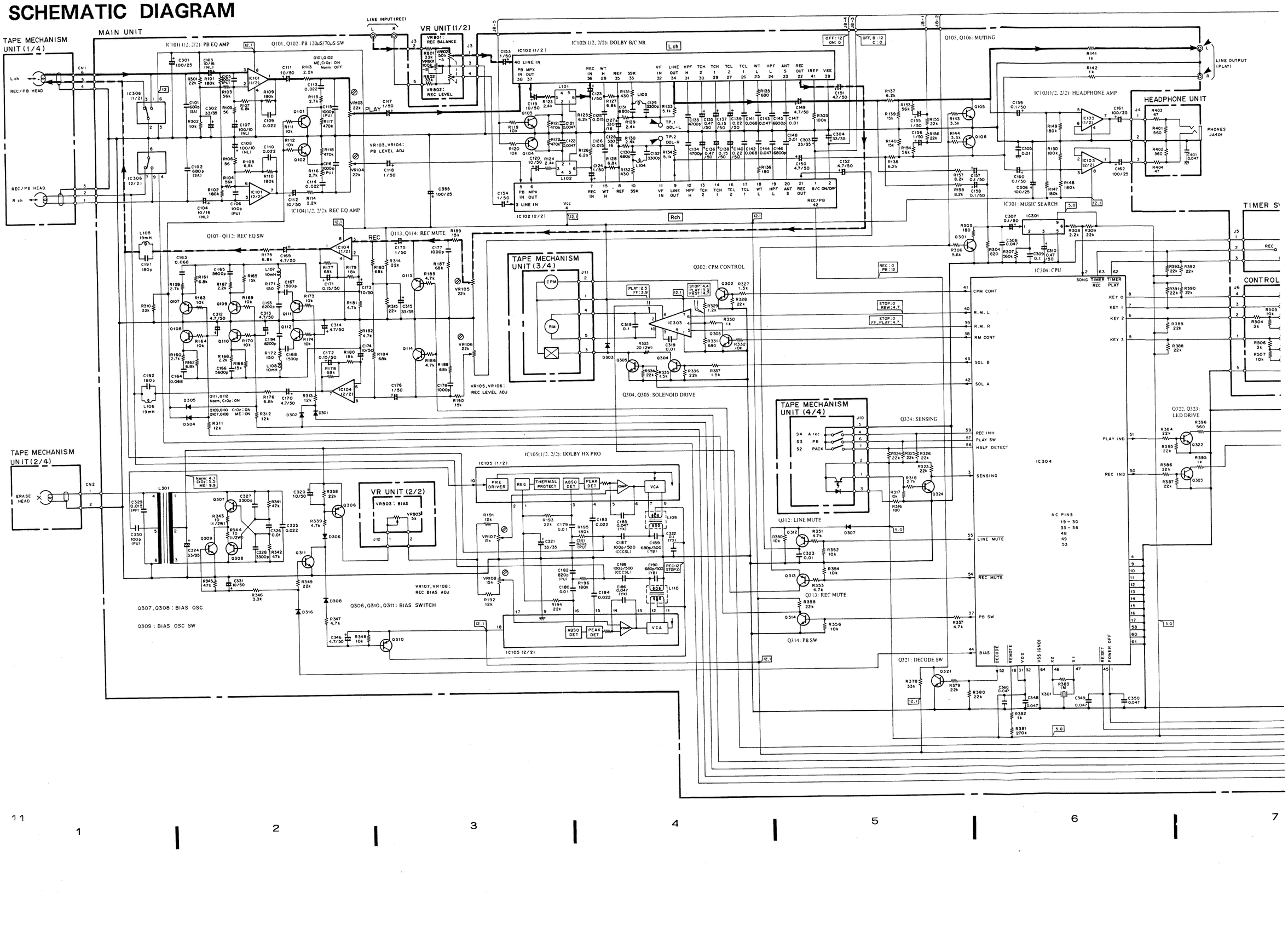
CAPACITORS

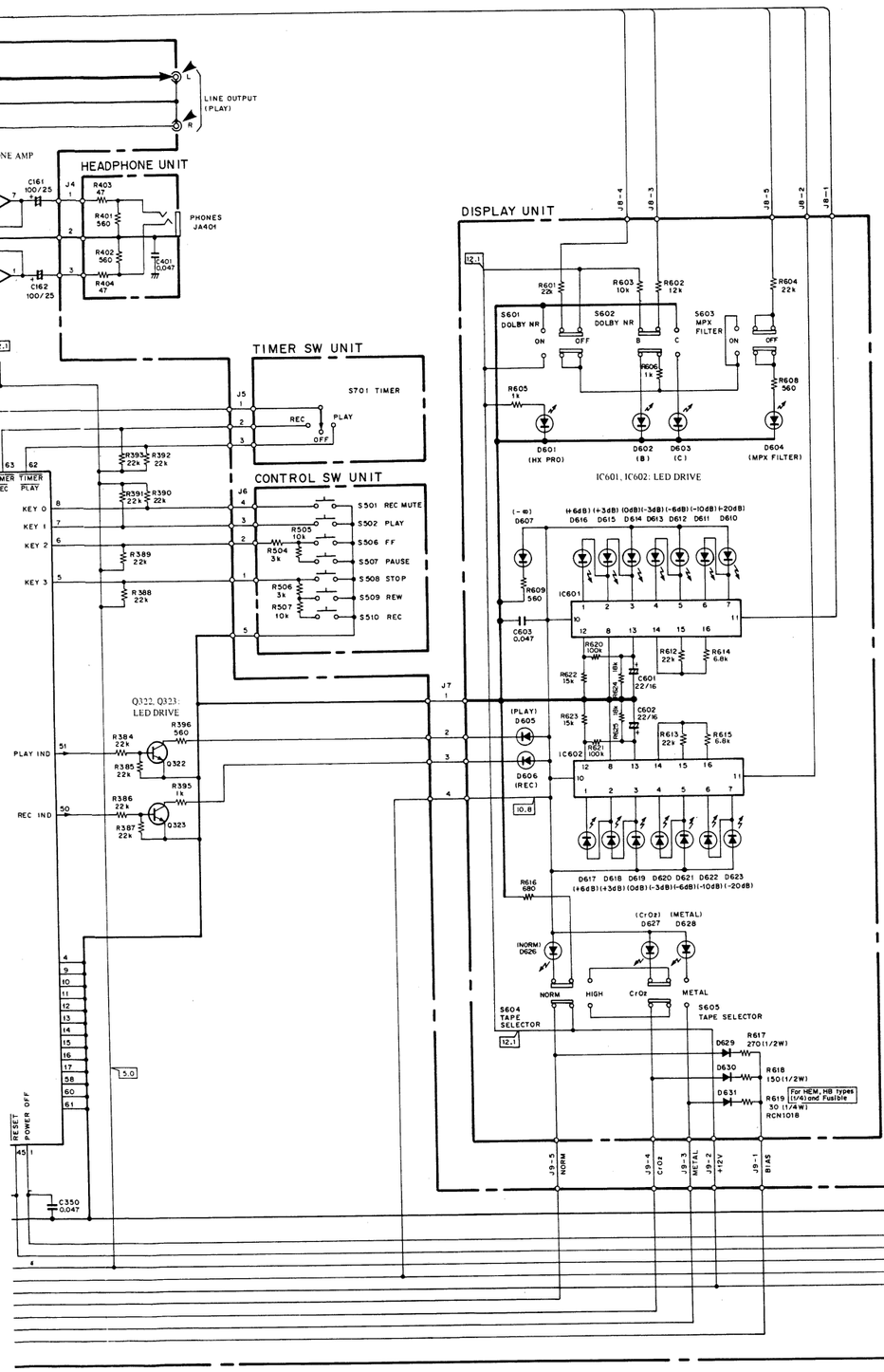
Mark	Symbol & Description	Part No.
⚠	C901, C902	CKCYF103Z50

Transformer unit

There is no supply parts.

3. SCHEMATIC DIAGRAM





MAIN UNIT	
IC301	BA335
IC303	BA6109
IC102	CX20187
103, IC104, IC305, IC101	M5218L
	M5220L
IC304	PD4149
IC105	μPC1297CA
IC306	μPC1330HA
Q306, Q310, Q312, Q313, Q317, Q320	2SA1309A
Q307, Q308	2SC3243
Q302, Q304, Q305	2SC3246
Q101–Q104, Q107–Q114, Q301, Q303, Q311, Q314, Q318, Q319, Q321–Q324	2SC3311A
Q105, Q106, Q309	2SD1302
Q316	2SD1796
D315	MTZ5.1B
D313	MTZJ6.2C
D310	1B2C1–LC2
D309	1B2Z1–LC2
D303	1SR35–100A
D301, D302, D304–D308, D311, D312, D314, D316	1SS254
L301	RTD1019
L109, L110	RTD1020
L107, L108	RTF1004
L103–L106	RTF1005
L101, L102	RTF1058
VR107, VR108	VRTB6VS153
VR103–VR106	VRTB6VS223
JA303	RKB1001
X301	VSS1014

DISPLAY UNIT	
IC601, IC602	AN6882
D601, D606, D614–D619	SEL4214S
D602–D605, D607, D610–D613, D620–D623, D626–D628	LT4E41C (HEM, HB) SEL4914A (HP, SD)
D631	1SR35–100A
D629, D630	1SS254
S601–S605	RSG–150
VR UNIT	
VR803	RCV1007
VR801	RCV1010
VR802	RCV1012
CONTROL SW (C) UNIT	
S501, S502, S506–S510	RSG–155
HEADPHONE UNIT	
JA401	RKN1002
TIMER SW UNIT	
S701	RSH1014
TRANSISTOR UNIT	
Q315	2SD1796
POWER SW UNIT	
S901	RSA–069

1. RESISTORS :
   Indicated in Ω, 1/8, 1/4W, ±5% tolerance unless otherwise noted
   k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ±10%, (M) ; ±20% tolerance.
2. CAPACITORS :
   Indicated in capacity (μF) / voltage (V) unless otherwise noted
   p ; pF.
   Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE CURRENT :
   □ : DC voltage (V) at no input signal.
   mA ; DC current at no input signal.
4. SWITCHES (The underline indicates the switch position)

   TAPE MECHANISM UNIT
   S2 : PACK ON–OFF
   S3 : PB ON–OFF
   S4 : A REC ON–OFF

   DISPLAY UNIT
   S601 : DOLBY NR ON–OFF
   S602 : DOLBY NR B–C
   S603 : MPX FILTER OFF–ON
   S604 : TAPE SELECTOR NORM–HIGH
   S605 : TAPE SELECTOR CrO2–METAL

   CONTROL SW UNIT
   S501 : ⏺ REC MUTE
   S502 : ▶ PLAY
   S506 : ▶▶ FF
   S507 : ■ PAUSE
   S508 : ■ STOP
   S509 : ◀◀ REW
   S510 : ● REC

   TIMER SW UNIT
   S701 : TIMER REC–OFF–PLAY

   POWER SW UNIT
   S901 : POWER ON–OFF

   OUTSIDE OF UNITS (SD TYPE)
   S5 : VOLTAGE SELECTOR SWITCH
   110V–120-127V–220V–240V

5. OTHERS
   - ⊘ : Adjusting point.
   - The ! mark found on some component parts indicates the importance of the safty factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   - ⊞ marked capacitor and resistor have parts number.
   - This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

   ——— PLAYBACK SIGNAL ROUTE
   - - - - RECORDING SIGNAL ROUTE
   ➤ ADJUSTING TEST POINT

HEM, HB, HP type Line Voltage Selection

Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the Bonnet case.
3. Change the connection of the TRANSFORMER UNIT assembly primary pins.
4. Stick the line voltege label on the rear panel.

Part No.	Description	
AAX-193	220v label	——— HEM, HB 220V
AAX-192	240V label	- - - - HP 240V

A

B

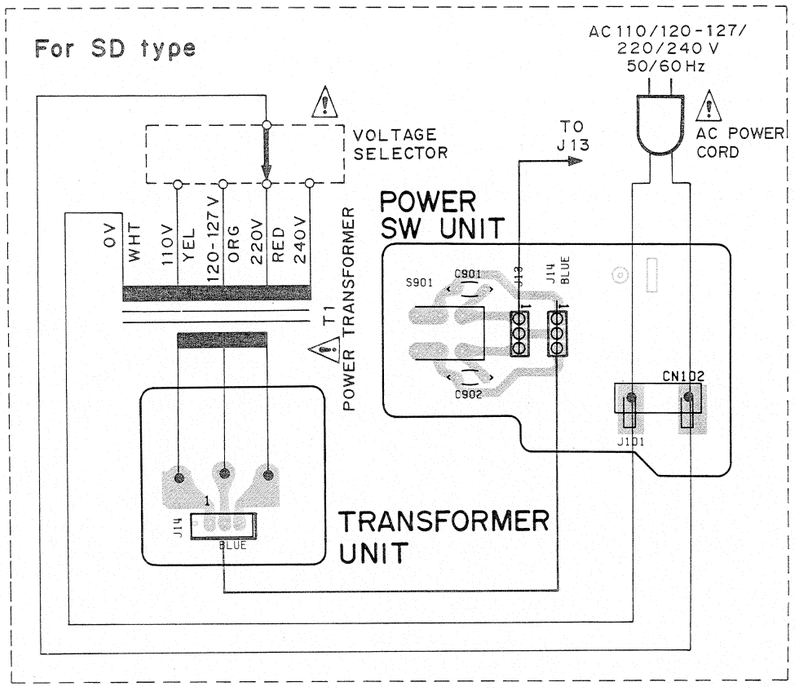
C

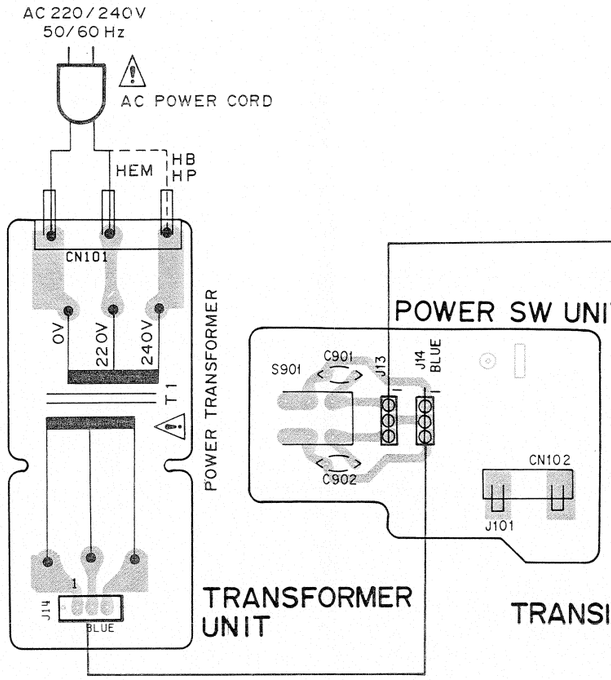
D

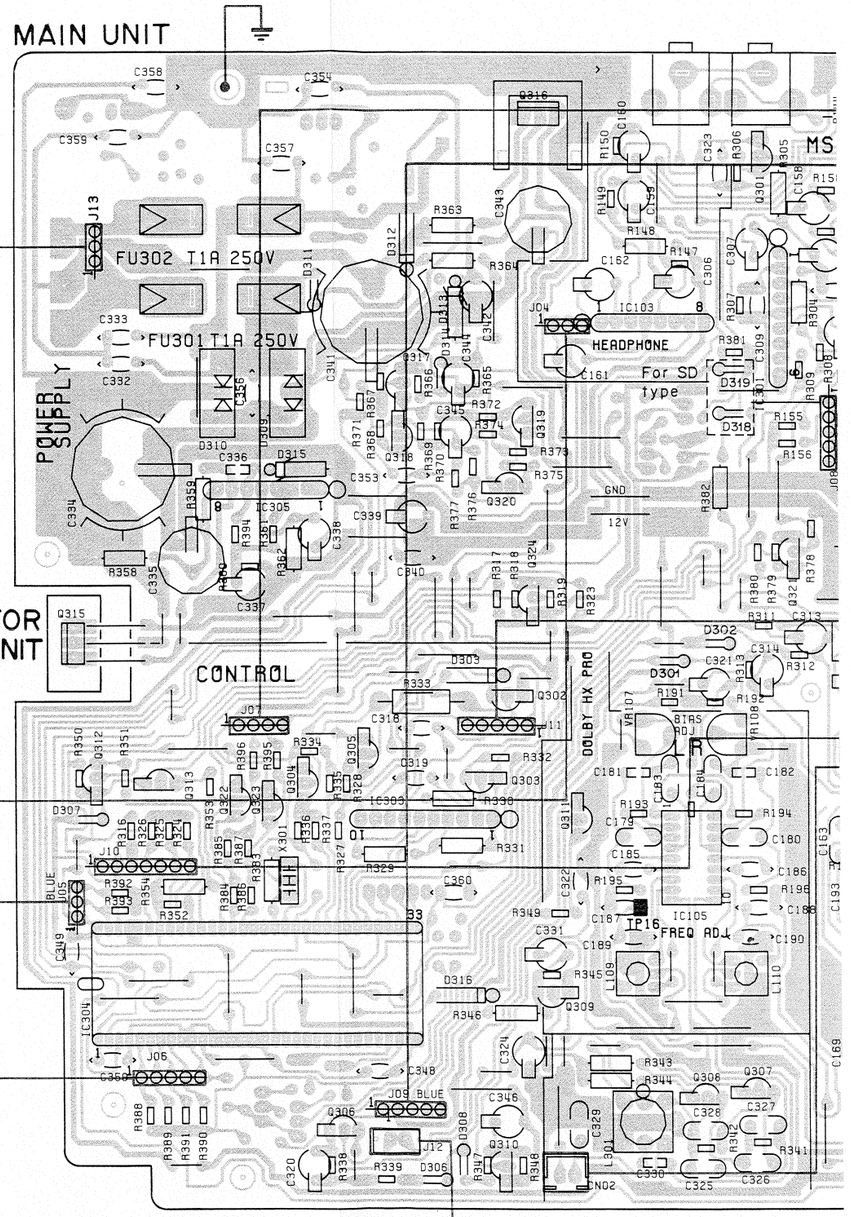
7 8 9 10 11 12

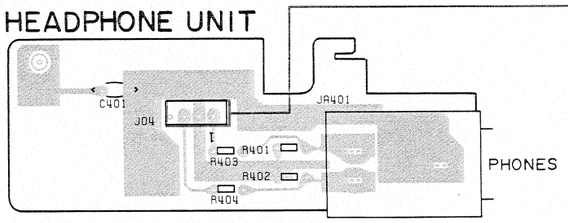
4. P.C. BOARDS CONNECTION DIAGRAM

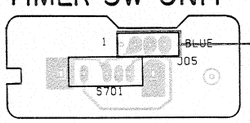
• View from component side

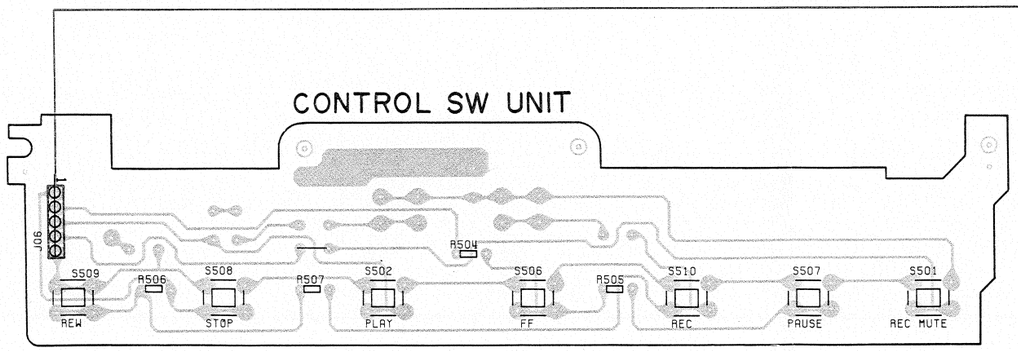


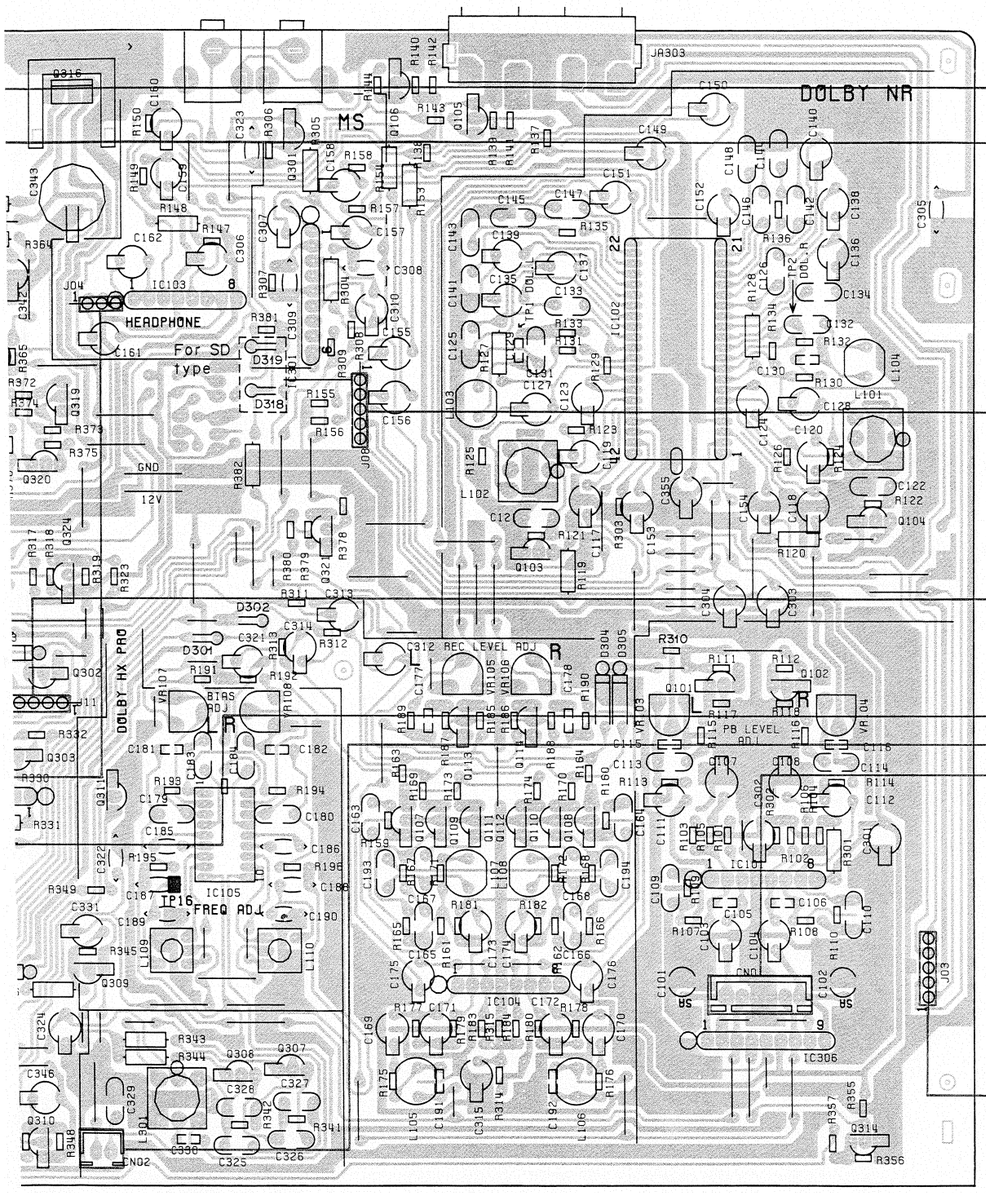


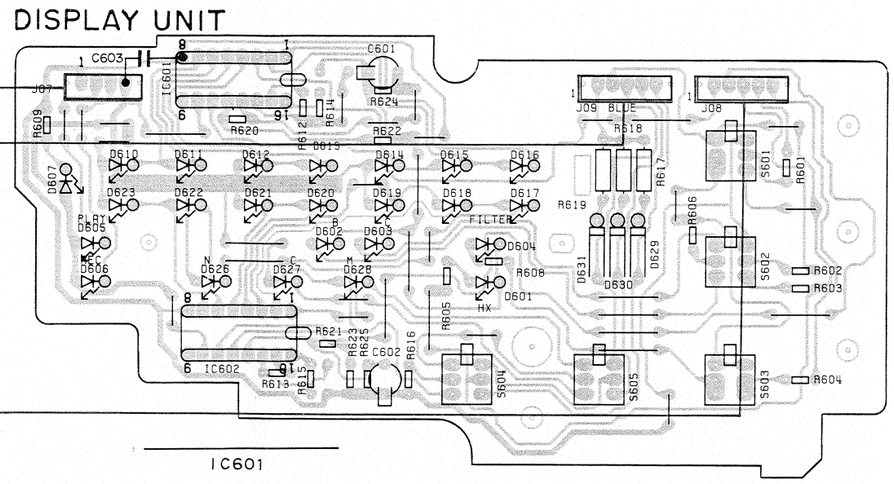


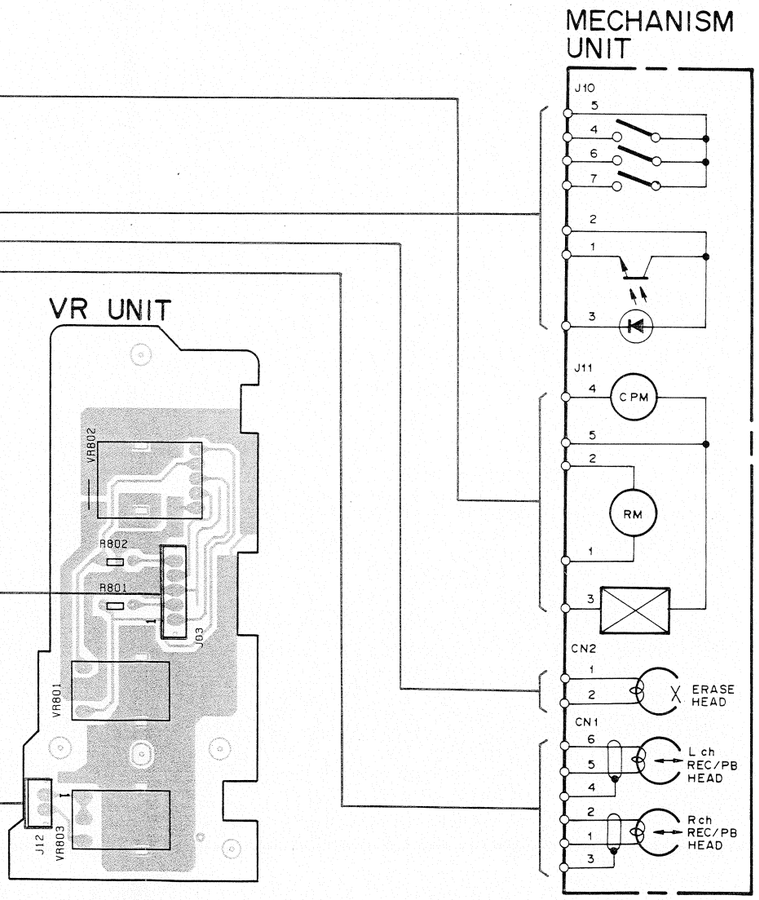










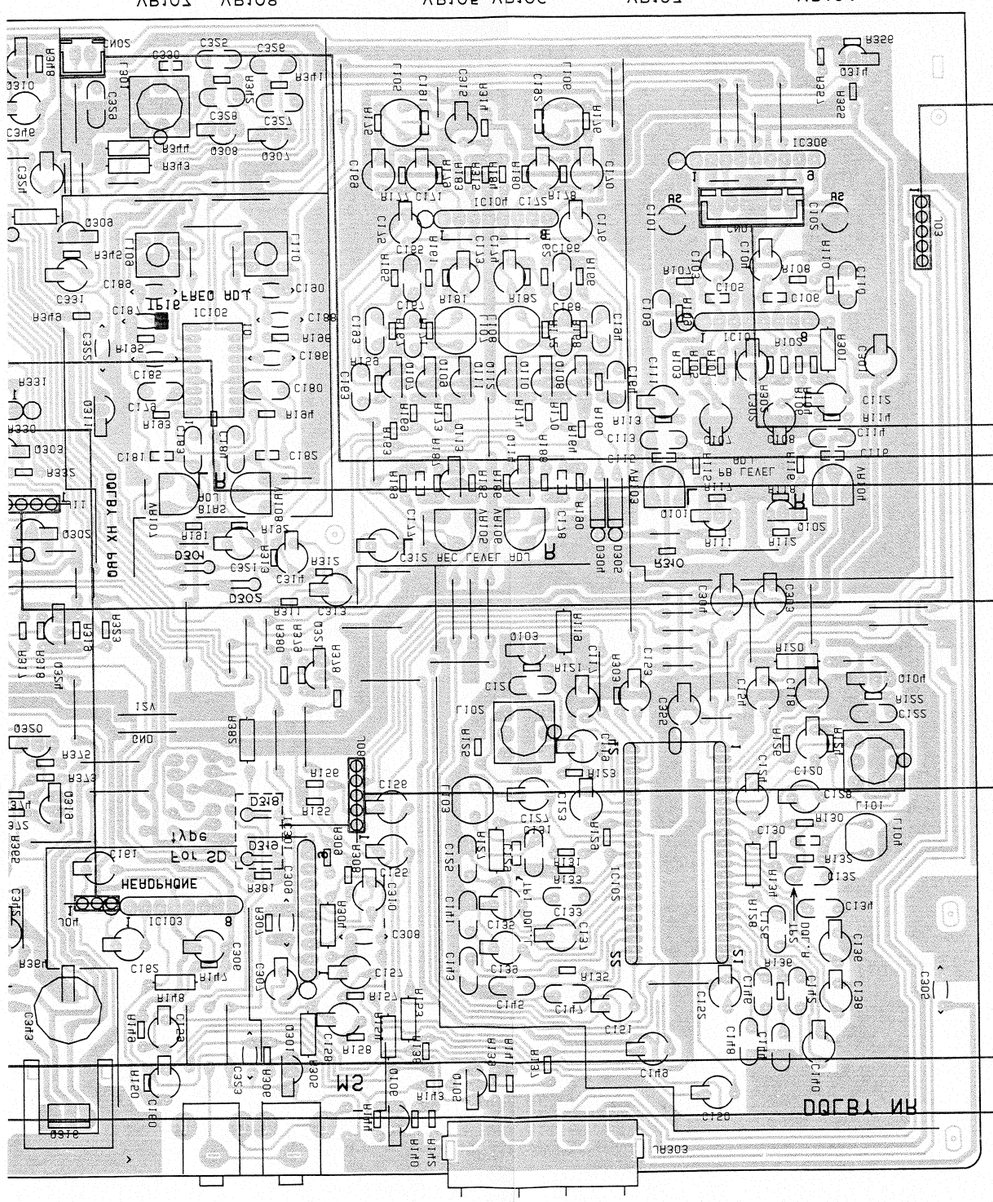


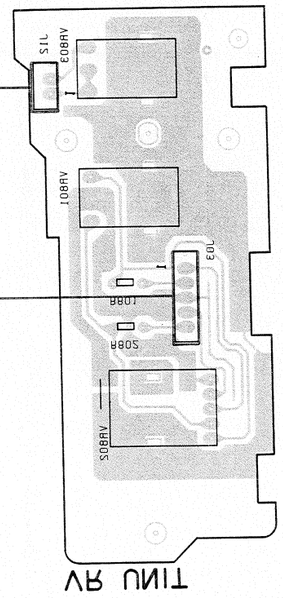
P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Noiseless)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

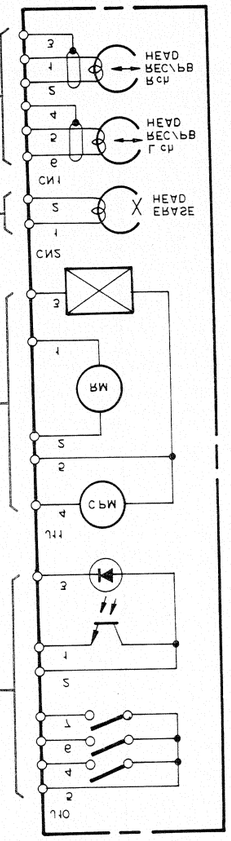
1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

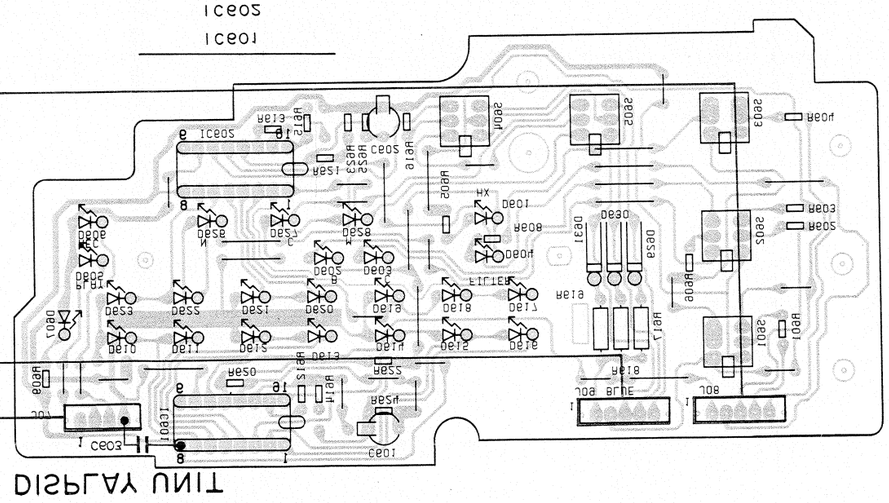
A B C D

6 7 8 9 10 11 12




VR UNIT

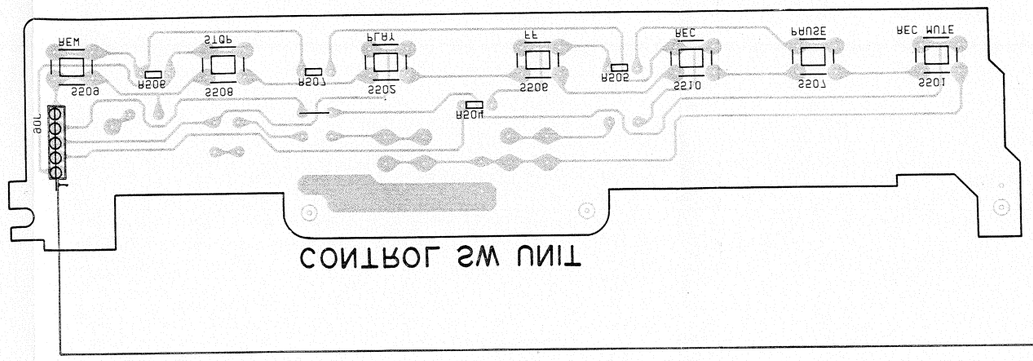

MECHANISM UNIT
HEAD
REC/PB
R ch
HEAD
REC/PB
L ch
HEAD
ERASE

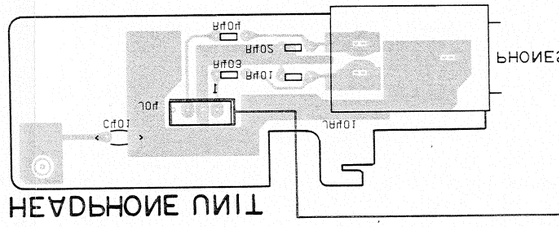

DISPLAY UNIT

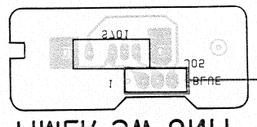
CT-332

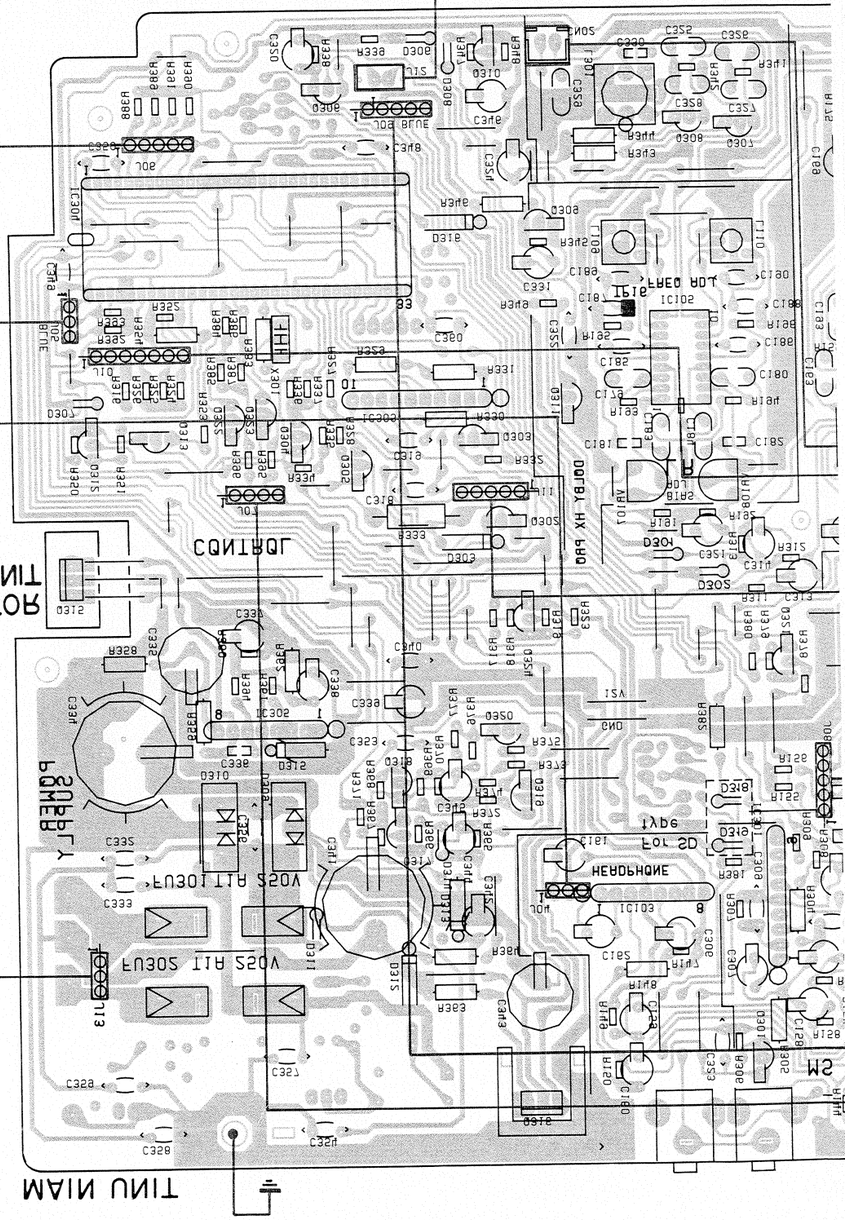
4. P.C. BOARDS CONNECTION DIAGRAM

• View from soldering side









5. ADJUSTMENTS

5.1 MECHANICAL ADJUSTMENT

1. Tape Speed Adjustment			
Mode	**Test tape**	**Adjustment position**	**Specification rating (playback frequency)**
PLAY	Play the STD-301 tape (3kHz)	Variable resistor control	3000Hz ± 5Hz

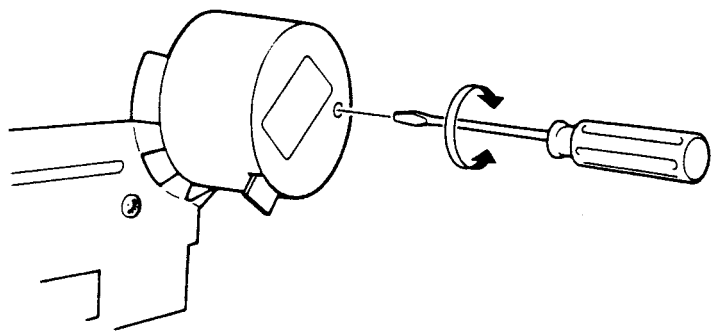


Fig. 5-1

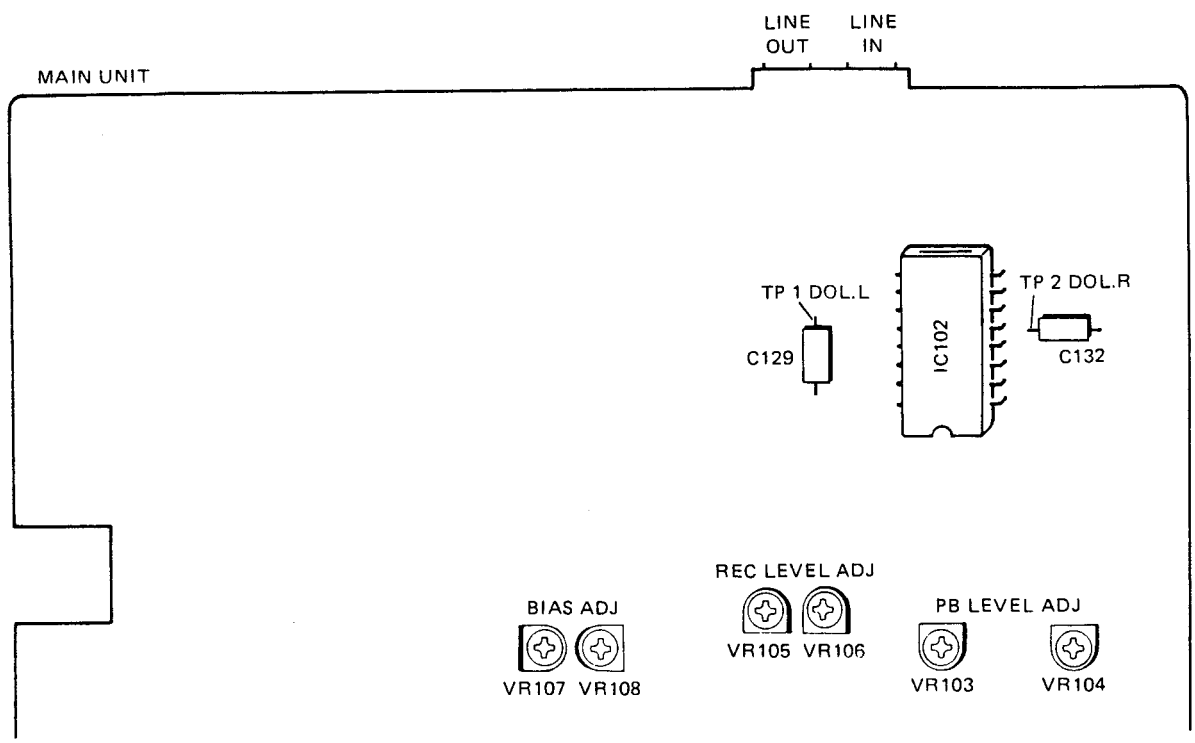


Fig. 5-2 Adjusting Points

5.2 ELECTRICAL ADJUSTMENTS

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0dBv=1Vrms.
5. Connect a 50 kilo-ohm (or between 47 to 52 kilo-ohm) load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Test Tapes

STD-331B	: Playback adjustments (See Fig. 5-3)
STD-630	: NORMAL blank tape
STD-620	: CrO_2 blank tape
STD-610	: METAL blank tape

List of Adjustments

Playback sections

1. Head azimuth adjustment.
2. Playback level adjustment.

Recording sections

1. Recording bias adjustment.
2. Recording level adjustment.

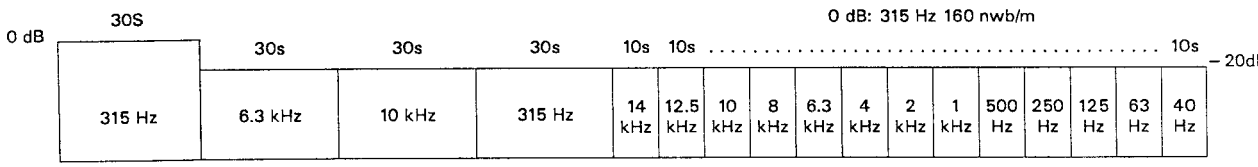


Fig. 5-3. Constants of the test tape STD-331B

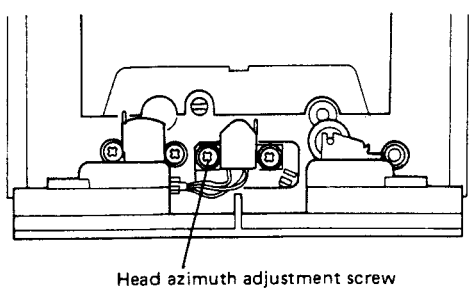


Fig. 5-4. Head azimuth adjustment

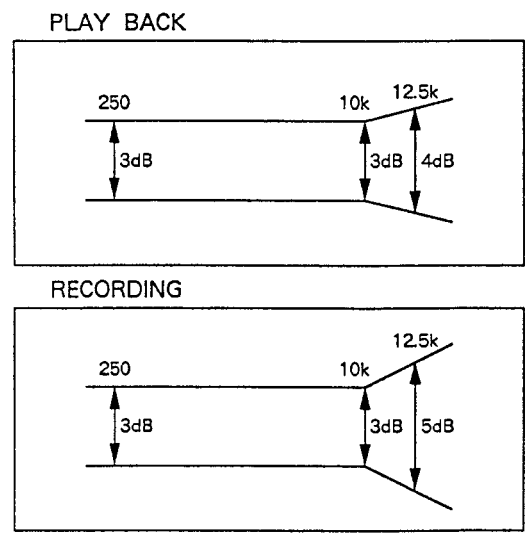


Fig. 5-5. Allowable playback frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

• Turn VR103, VR104 to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/−20 dB section of STD-331B test tape.	Head azimuth adjustment screw. (See Fig. 5-4)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback level Adjustment

• This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD-331B test tape.	VR103 (Lch) VR104 (Rch)	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	−15.2 dBv	

RECORDING SECTION

1. Recording Bias Adjustment

• After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	STOP	Set the TAPE SELECTOR switch to the NORM position.				
2.	REC	Record the 315 Hz and 6.3 kHz signals at −20 dBv input level and playback.	VR107 (Lch) VR108 (Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes +0.5 dB±0.5 dB when compared with the 315 Hz signal.	

2. Recording Level Adjustment

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	STOP	Set the TAPE SELECTOR switch to the NORM position.				
2.	REC PAUSE	Apply a 315 Hz/0 dBv signal to the line input terminals, load the STD-630 test tape.	Rec Level control volume	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	−15.2 dBv	
3.	STOP	Set the DOLBY NR switch to the ON position. (DOLBY B)				
4.	REC/ PLAY	Record the above signal onto the STD-630 test tape, and playback.	VR105 (Lch) VR106 (Rch)	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes −15.2dB.	
5.	STOP	Set the TAPE SELECTOR switch to the CrO_2 position.				
6.	REC/ PLAY	Record the above signal onto the STD-620 test tape, and playback.	Check	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	−15.2 dBv ±1.5 dB	
7.	STOP	Set the TAPE SELECTOR switch to the METAL position.				
8.	REC/ PLAY	Record the above signal onto the STD-610 test tape, and playback.	Check	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	−15.2 dBv ±1.5 dB	

5. RÉGLAGE

5.1 RÉGLAGES MÉCANIQUES

1. Reglage de la vitesse de défilement de la bande			
Mode	**Bande d'étalonnage**	**Position de réglage**	**Spécifications nominales (fréquence de lecture)**
LECTURE	Lire la bande STD-301 (3kHz)	Contrôle à résistance variable	3000Hz ± 5Hz

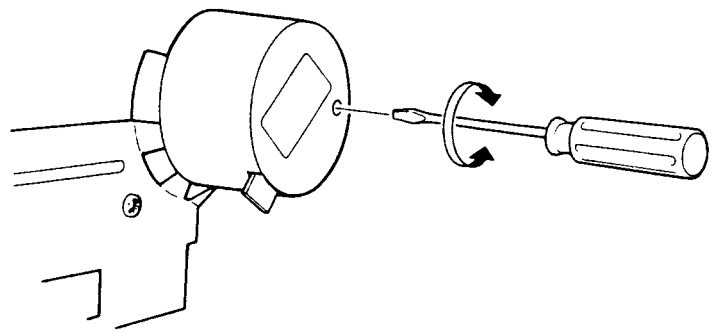


Fig. 5-1

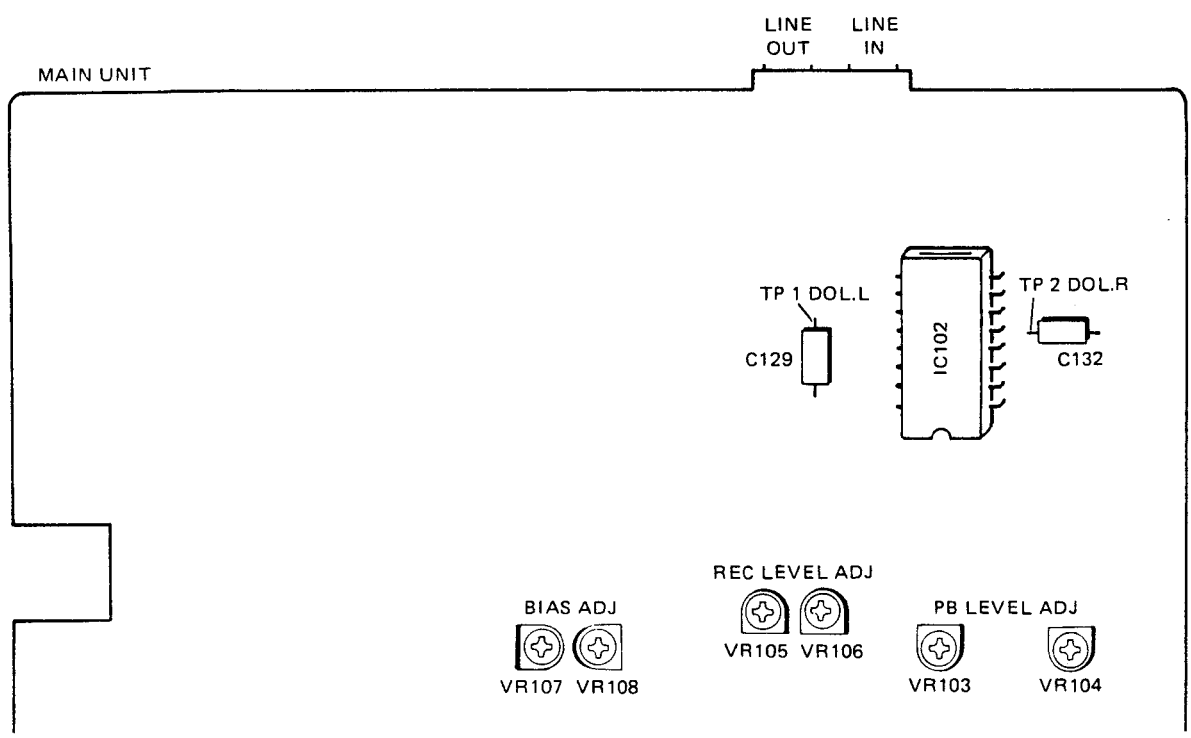


Fig. 5-2 Points de réglage

5.2 REGLAGES ELECTRIQUES

Conditions de réglage

1. Les réglages mécaniques doivent tout d'abord être terminés.
2. Les têtes doivent être nettoyées et démagnétisées.
3. Mettre la platine sous tension et la laisser chauffer pendant au moins quelques minutes avant de commencer les réglages électriques.
4. Le signal de référence est de dBv=1 Vrms.
5. Connecter une résistance de charge de 50 kohms (tolérance 47 à 52 kohms) aux bornes de sortie (OUTPUT).
6. Sauf indication contraire, les commutateurs ci-dessous doivent être laissés sur les positions indiquées.
   DOLBY NR : OFF
   Sélecteur de bande (TAPE SELECTOR) : NORM

Bandes d'essai

STD-331B	: Réglages de la lecture (Voir fig. 5-3)
STD-630	: Bande vierge de type normal
STD-620	: Bande vierge de type chrome
STD-610	: Bande vierge de type métal

Liste des réglages

Sections de lecture

1. Réglage de l'azimut de la tête.
2. Réglage du niveau de lecture.

Sections d'enregistrement

1. Réglage de la polarisation d'enregistrement.
2. Réglage du niveau d'enregistrement.

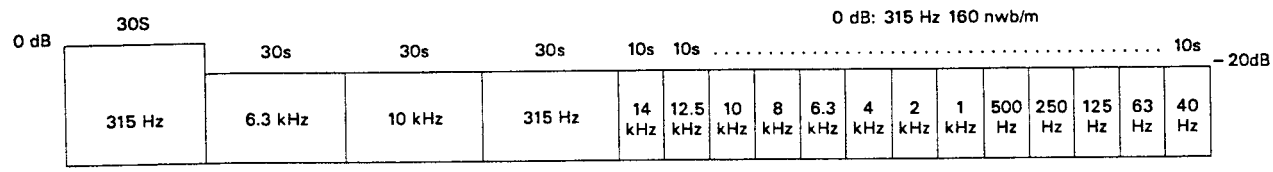


Fig. 5-3 Constantes de la bande d'essai STD-331B

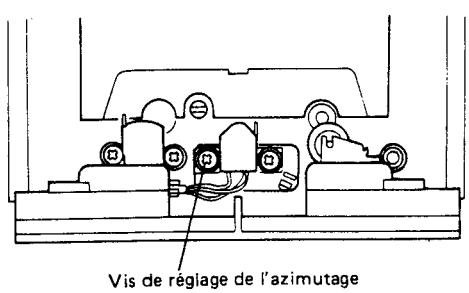


Fig. 5-4 Réglage de l'azimut de la tête

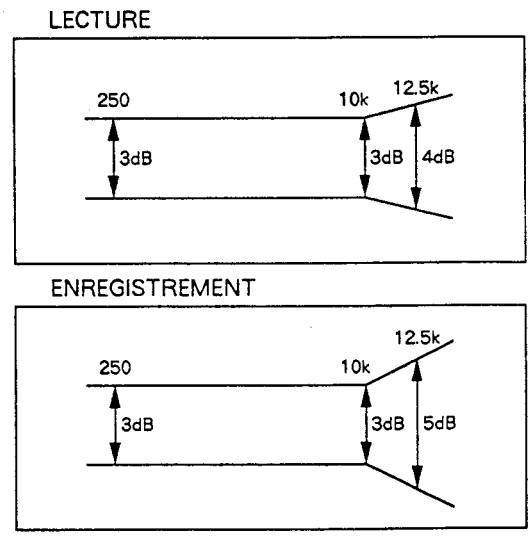


Fig. 5-5 Tolérance de la zone de réponse en fréquence de lecture

SECTION DE LECTURE

1. Réglage de l'azimut de la tête

• Tourner VR103, VR104 sur leur position centrale mécanique.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	PLAY	Reproduire la section 10 kHz/−20 dB de la bande d'essai STD-331B.	Vis de réglage de l'azimut de la tête. (Voir fig. 5-4)	Sortie de ligne (LINE OUT)	Niveau du signal de reproduction maximum.	
2.	STOP	Verrouiller la vis avec le verrouillage de vis après avoir terminé le réglage.				

2. Réglage du niveau de lecture

• Ce réglage détermine le niveau DOLBY NR et il doit être effectué très soigneusement.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	PLAY	Reproduire la section 315 Hz/0 dB de la bande d'essai STD-331B.	VR103 (can. G) VR104 (can. D)	TP1. DOL-L (can. G) TP2. DOL-R (can. D)	−15.2 dBv	

SECTION D'ENREGISTREMENT

1. Réglage de la polarisation d'enregistrement

• Après le réglage, des précautions doivent être prises pour éviter une sous-polarisation en vérifiant le taux de distorsion.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position NORM.				
2.	REC	Enregistrer les signaux 315 Hz et 6,3 kHz à un niveau d'entrée de −20 dBv et les reproduire.	VR107(can. G) VR108(can. D)	Sortie de ligne (LINE OUT)	Enregistrer, reproduire et régler de manière répétée de sorte que le niveau de lecture du signal 6,3 kHz devienne +0.5 dB ±0.5 dB lorsqu'il est comparé avec le signal 315 Hz.	

2. Réglage du niveau d'enregistrement

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position NORM.				
2.	REC PAUSE	Appliquer un signal de 315 Hz/0 dBv aux bornes d'entrée de ligne, charger la bande d'essai STD-630.	Volume de la commande de niveau d'enregistrement.	TP1. DOL-L (can. G) TP2. DOL-R (can. D)	−15.2 dBv	
3.	STOP	Régler le commutateur DOLBY NR sur la position ON. (DOLBY B)				
4.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-630 et le reproduire.	VR105(can. G) VR106(can. D)	TP1. DOL-L (can. G) TP2. DOL-R (can. D)	Enregistrer, reproduire et régler de manière répétée de sorte que le niveau du signal devienne −15.2dB.	
5.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position CrO_2.				
6.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-620 et le reproduire.	Vérifier	TP1. DOL-L (can. G) TP2. DOL-R (can. D)	−15.2 dBv ±1.5 dB	
7.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position METAL.				
8.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-610 et le reproduire.	Vérifier	TP1. DOL-L (can. G) TP2. DOL-R (can. D)	−15.2 dBv ±1.5 dB	

5. AJUSTE

5.1 AJUSTES MECANICOS

1. Ajuste de la velocidad de la cinta			
Modo	**Cinta de prueba**	**Posición de ajuste**	**Valor de especificación (frecuencia de reproducción)**
PLAY	Reproducir la STD-301 (3kHz)	Control del resistor variable	3000Hz ± 5Hz

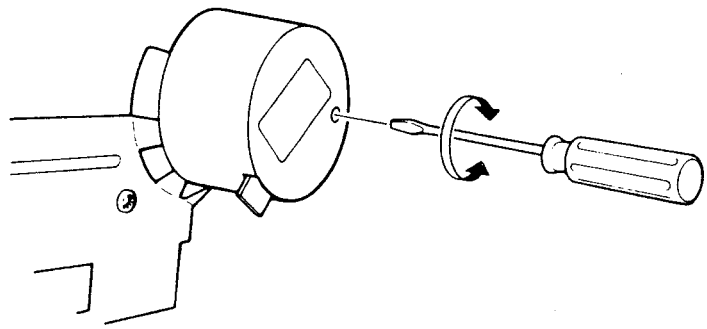


Fig. 5-1

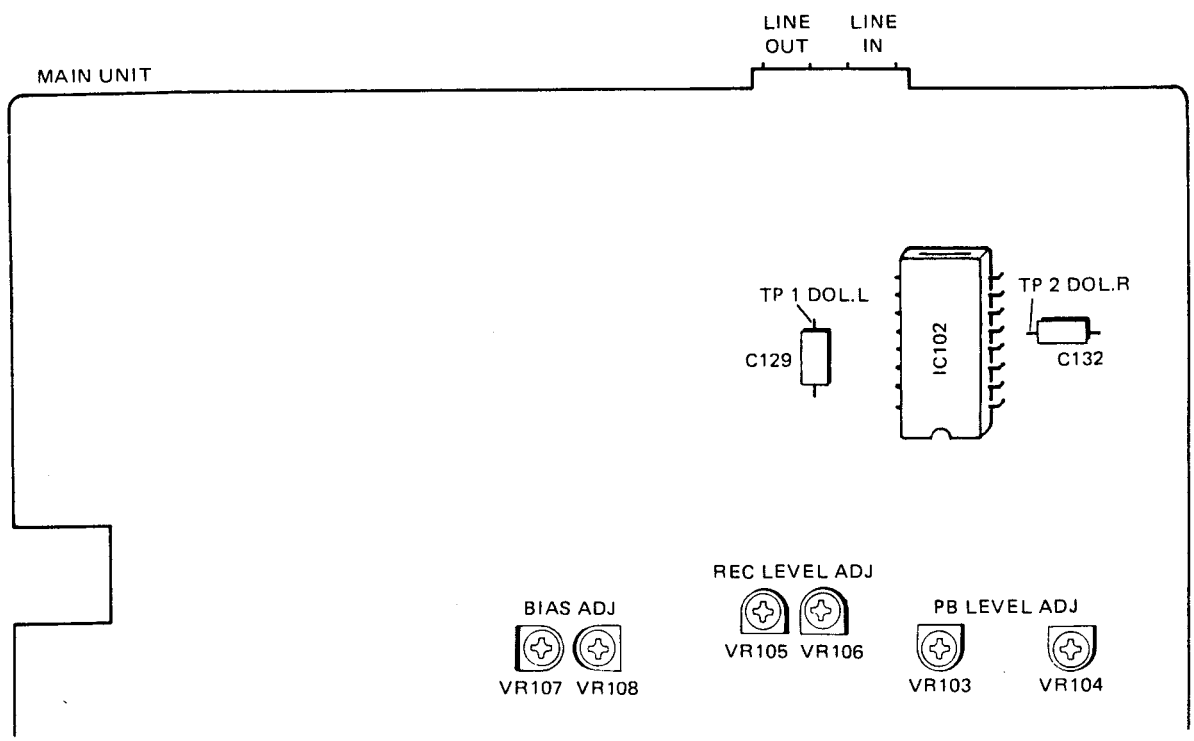


Fig. 5-2 Puntos de ajuste

5.2 AJUSTES ELÉCTRICOS

Condiciones de ajuste

1. Los ajustes mecánicos deben haberse completado primero.
2. La cabeza debe estar limpia y desmagnetizada.
3. Encienda la alimentación para permitir que la platina se caliente durante unos pocos minutos por lo menos antes de realizar cualquier ajuste eléctrico.
4. La señal de referencia es de 0 dBv=1 Vrms.
5. Conecte una resistencia de 50 kΩ (o entre 47 y 52 kΩ) en los terminales OUTPUT.
6. A menos que se especifique lo contrario, los conmutadores indicados más abajo deben dejarse en las posiciones indicadas.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Cintas de prueba

STD-331B : Ajustes de reproducción (Consulte la figura 5-3)
STD-630 : Cinta virgen NORMAL
STD-620 : Cinta virgen de CrO_2
STD-610 : Cinta virgen de METAL

Lista de ajustes

Secciones de reproducción

1. Ajuste de azimut de la cabeza
2. Ajuste del nivel de reproducción

Secciones de grabación

1. Ajuste de la polarización de grabación
2. Ajuste del nivel de grabación

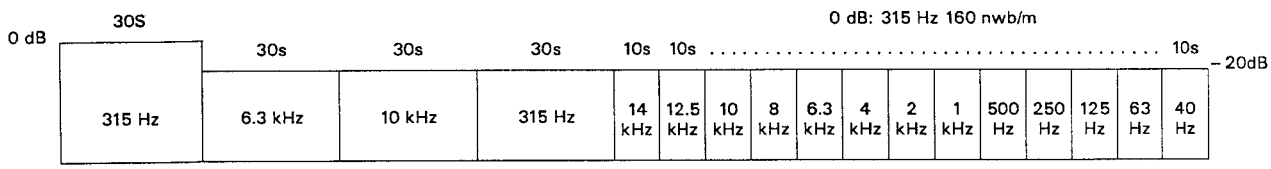


Figura 5-3 Constantes de la cinta de prueba STD-331B

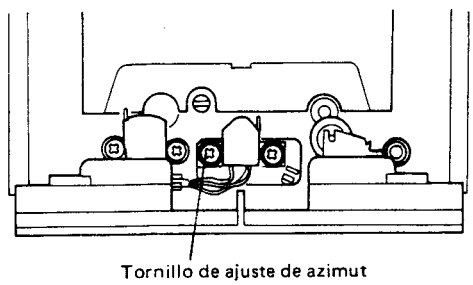


Figura 5-4 Ajuste de azimut de la cabeza

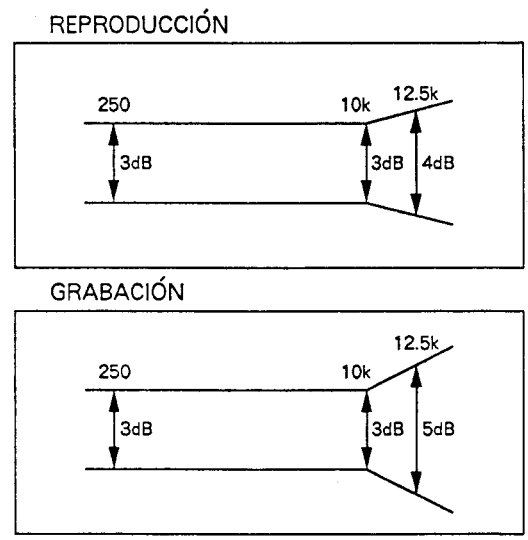


Figura 5-5 Zona permisible de respuesta de frecuencia de reproducción

SECCIÓN DE REPRODUCCIÓN

1. Ajuste del azimut de la cabeza

• Poner VR 103, VR 104 en las posiciones del centro mecánico.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	PLAY	Reproduzca la sección de 10 kHz/−20 dB de la cinta de prueba STD-331B.	Tornillo de ajuste del azimut de la cabeza. (Vea la figura 5-4)	LINE OUT	Nivel máximo de la señal de reproducción.	
2.	STOP	Bloquee el tornillo con su cierre una vez finalizado el ajuste.				

2. Ajuste del nivel de reproducción

• Este ajuste determina el nivel DOLBY NR y debe realizarse con mucho cuidado.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	PLAY	Produzca la parte de 315 Hz/0 dB de la cinta de prueba STD-331B.	VR 103 (Lch) VR 104 (Rch)	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	−15.2 dBv	

SECCIÓN DE GRABACIÓN

1. Ajuste de polarización de grabación

• Una vez finalizado el ajuste, compruebe el porcentaje de distorsión para no obtener subpolarización.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	STOP	Ponga el conmutador TAPE SELECTOR en la posición NORM.				
2.	REC	Grabe la señal de 315 Hz y 6,3 kHz a un nivel de entrada de −20 dBv y reprodúzcala.	VR 107 (Lch) VR 108 (Rch)	LINE OUT	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de reproducción de 6,3 kHz sea de + 0.5 dB ± 0.5 dB cuando se compare con la señal de 315 Hz.	

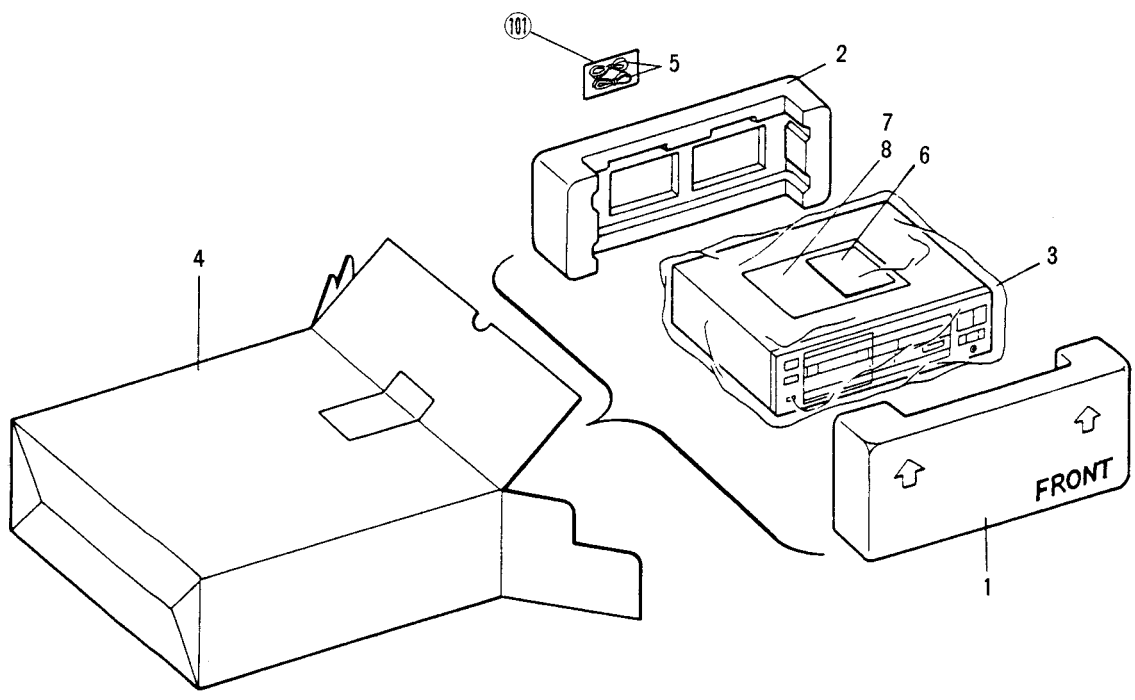
2. Ajuste del nivel de grabación

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	STOP	Ponga el conmutador TAPE SELECTOR en la posición NORM.				
2.	REC PAUSE	Aplique una señal de 315 Hz/0 dBv a los terminales de entrada de línea e introduzca la cinta de prueba STD-630.	Control de nivel de grabación.	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	−15.2 dBv	
3.	STOP	Ponga el conmutador DOLBY NR en la posición ON. (DOLBY B)				
4.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-630 y reprodúzcala.	VR 105 (Lch) VR 106 (Rch)	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de reproducción sea de −15.2 dB.	
5.	STOP	Ponga el conmutador TAPE SELECTOR en la posición CrO_2.				
6.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-620 y reprodúzcala.	Verifique	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	− 15.2 dBv ± 1.5 dB	
7.	STOP	Ponga el conmutador TAPE SELECTOR en la posición METAL.				
8.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-610 y reprodúzcala.	Verifique	TP1. DOL-L (Lch) TP2. DOL-R (Rch)	− 15.2 dBv ± 1.5 dB	

6. PACKING

Parts List

Mark	No.	Part No.	Description
	1	RHA1006	Pad (A)
	2	RHA1007	Pad (B)
	3	RHX−034	Styrene paper
	4	RHG1108	Packing case
	5	RDE−010	Connection cord
	6	RRB1035	Operating instructions (English)
	7	RRD1053	Operating instructions (French/German/Italian)
	8	RRD1056	Operating instructions (Dutch/Spanish/ Portuguese/Swedish)
	101		Connection cord assembly



7. HB, HP, SD AND CT−335−S/HEM TYPES

CONTRAST OF MISCELLANEOUS PARTS

NOTES :
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The CT−335/HB, HP, SD and CT−335−S/HEM types are the same as the CT−335/HEM type with the exception of the following sections.

Mark	Symbol & Description	Part No.				
		CT−335 /HEM type	CT−335 /HB type	CT−335 /HP type	CT−335 /SD type	CT−335−S /HEM type
	Main unit	Non supply	Non supply	Non supply	Non supply	Non supply
	Display unit	Non supply	Non supply	Non supply	Non supply	Non supply
	Power SW unit	Non supply	Non supply	Non supply	Non supply	Non supply
	Transformer unit	Non supply	Non supply	Non supply	Non supply	Non supply
⚠	AC Power cord	PDG1003	PDG1004	PDG1006	PDG1013	PDG1003
⚠	Voltage selector	.....	.....	.....	PSB1002	.....
⚠	T1 Power transformer (AC220/240V)	RTT1050	RTT1050	RTT1050	.....	RTT1050
⚠	T1 Power transformer (AC110/120−127/220/240V)	.....	.....	.....	RTT1051	.....
	Slide knob (A) (TIMER)	RAC−668	RAC−668	RAC−668	RAC−668	RAC1219
	VR konb (REC LEVEL)	RAC1221	RAC1221	RAC1221	RAC1221	RAC1222
	Operation knob (◂◂, ■, ▸, ●, ▮▮, ○)	RAC1223	RAC1223	RAC1223	RAC1223	RAC1224
	Eject knob (EJECT)	RAC1226	RAC1226	RAC1226	RAC1226	RAC1227
	Counter reset knob (RESET)	RAC1228	RAC1228	RAC1228	RAC1228	RAC1309
	Tape select knob (TAPE SELECTOR, MPX FILTER)	RAC1230	RAC1230	RAC1230	RAC1230	RAC1308
	Power button (POWER)	RAC1240	RAC1240	RAC1240	RAC1240	RAC1241
	Headphone knob (REC BALANCE, BIAS)	RAC1337	RAC1337	RAC1337	RAC1337	RAC1360
	Button panel	RAC1240	RAH1240	RAH1240	RAH1240	RAH1241
	Door panel	RAH1466	RAH1466	RAH1466	RAH1466	RAH1474
	Eject mold	RNK1313	RNK1313	RNK1313	RNK1313	RNK1314
	VR escutcheon	RNK1315	RNK1315	RNK1315	RNK1315	RNK1316
	Bonnet	RXX1079	RXX1079	RXX1079	RXX1079	RXX1080
	Front panel assembly	RXX1181	RXX1181	RXX1181	RXX1181	RXX1178
	Packing case	RHG1108	RHG1108	RHG1108	RHG1108	RHG1115
	Operating instructions (English)	RRB1035	RRB1035	RRB1035	RRB1035	.....
	Operating instructions (French/German/Italian)	RRD1053	.....	.....	.....	RRD1053
	Operating instructions (Dutch/Spanish/Portuguese/Swedish)	RRD1056	.....	.....	.....	.....
	Operating instructions (Spanish)	.....	.....	.....	RRD1054	.....

NOTE : MAIN UNIT, POWER SW UNIT, TRANSFORMER UNIT
No different parts to be supplied.

DISPLAY UNIT

The display units (for the CT−335/HP and SD types) are the same as the display unit (for the CT−335/HEM type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CT−335/HEM type	CT−335/HP and SD types	
	D602−D605, D607, D610−D613, D620−D623, D626−D627	LT4E41C	SEL4914A−X	
	R619	RCN1018	RD¼PMF300J	

8. SPECIFICATIONS

Systems ..... 4 track, 2-channel stereo
Heads ..... "Hard Permalloy" recording/playback head × 1
"Ferrite" erasing head × 1
Motor ..... DC servo capstan motor × 1
DC reel motor × 1
Wow and Flutter ..... No more than 0.055% (WRMS)
± 0.17% (DIN)
Fast winding Time ..... Approximately 100 seconds
(C-60 tape)
Frequency Response (± 6 dB)
–20 dB recording:
Normal tape ..... 25 to 16,000 Hz
Chrome tape ..... 25 to 17,000 Hz
Metal tape ..... 25 to 18,000 Hz
Signal-to-Noise Ratio
Dolby NR OFF ..... More than 58 dB
Noise Reduction Effect
Dolby B-type NR ON ..... More than 10 dB (at 5 kHz)
Dolby C-type NR ON ..... More than 19 dB (at 5 kHz)
Harmonic Distortion ..... No more than 0.7% (0 dB)
Input (Sensitivity)
LINE (INPUT) ..... 63 mV (Input impedance 50 k Ω)
Output (Reference level)
LINE (OUTPUT) ..... 316 mV (Output impedance 5.5 k Ω)
Headphone ..... 0.25 mW (load impedance 8 Ω)

Subfunctions

- DOLBY B-type and C-type NR Systems
- DOLBY HX PRO
- MPX FILTER switch
- 3-position tape selector (NORM/CrO2/METAL)
- Music search over ± 15 selections
- Automatic space recording mute
- Rec BIAS control
- 7 segments/channel LED level meter
- Timer Recording/Playback

Miscellaneous

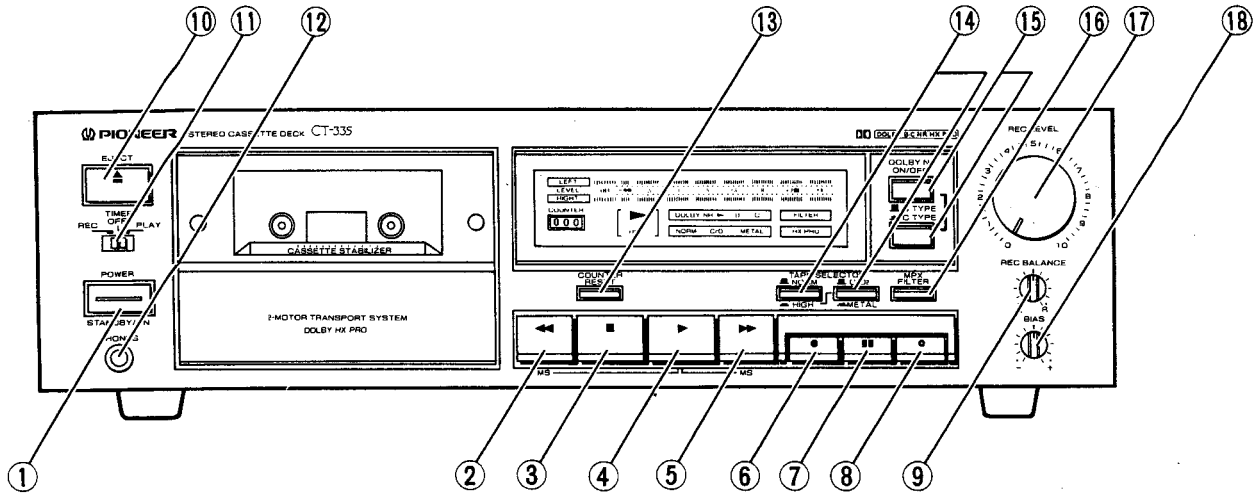
Power Requirements
European model ..... AC 220 Volts ~ , 50/60 Hz
U.K., Australian models ..... AC 240 Volts ~ , 50/60 Hz
Other destination models .....
AC 110V/120–127V/220V/240V,
50/60 Hz (switchable)
Power Consumption
European, U.K. models 17W
Other destination models 17W
Dimensions ..... 420(W) × 120(H) × 272(D) mm
16-9/16(W) × 4-3/4(H) × 10-11/16(D) in
Weight (without package) ..... 4.2 kg (9 lb 4 oz)

Accessories

Operating instructions 1
Connection cord with pin plugs 2

NOTE:
Specifications and design subject to possible modifications without notice due to improvements.

9. PANEL FACILITIES



① POWER (STANDBY/ON) switch

NOTE:
The POWER switch turns off the transformer secondary circuits only, and so even at the STANDBY position, the unit is connected to the mains as long as the power cord is connected to a power outlet.

② Rewind button (◀◀)

To rewind the tape in the direction of the arrows.
When this button is pressed once during playback of a selection, the same selection will be played again. If pressed in the blank between two selections, the first selection before the current tape position will be played. The unit will skip one selection in reverse direction for each time the (◀◀) button is pressed.

③ Stop button (■)

To stop all operations.

④ Playback button (▶)

To start playback.

⑤ Fast forward button (▶▶)

To fast-forward the tape in the direction of the arrows.
When pressed during playback, the unit will skip one selection in forward direction for each time the (▶▶) button is pressed.

⑥ Recording button (●)

When the recording (●) button is pressed, the unit is set to recording standby mode.
Press the pause (❚❚) button or playback (▶) button when ready to record.
The unit will not enter the recording standby mode if a cassette with the erasure prevention tabs removed is loaded.

⑦ Pause button (❚❚)

To stop tape transport momentarily during recording or playback. Press the button again to resume operation. This can also be done by pressing the playback (▶) button. This button does not work during fast-forward and rewind.

⑧ Record muting button (○)

Press this button during recording to create a blank portion of approx. 4 seconds on the tape. The unit will then enter the recording standby mode.

⑨ REC BALANCE control

Balancing the recording level between left (L) and right (R) channels.

⑩ EJECT button (▲)

Press to open the cassette door after you have pressed the stop button (■) and the tape has stopped.

NOTE:
If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the EJECT button.

⑪ TIMER switch

OFF:

Normally, be sure to leave the switch in this position.

REC:

For timer recording

PLAY:

For timer playback

- Recording or playback may suddenly start when turning the power on with this switch in the REC or PLAY position.

⑫ PHONES jack

⑬ Tape COUNTER RESET button

Resets the tape counter reading to "000".

⑭ TAPE SELECTOR switches

These switches must be set in accordance with the tape used to select the proper recording bias and playback equalization.

Normal tape:

Release the left switch (NORM).

CrO_2 tape:

Depress the left switch (HIGH) and release the right switch (CrO_2).

Metal tape:

Depress both the right and left switches (HIGH, METAL).

⑮ DOLBY * NR switches

Set these switches to ON and B-TYPE or C-TYPE for recording with the built-in Dolby NR Systems and for playback of tapes which have been recorded using the Dolby NR Systems.
For other tapes, set the upper DOLBY NR switch to OFF.

*

- *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.*
- *"DOLBY," and the double-D symbol and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

⑯ MPX FILTER switch

High frequencies may be muted when using the Dolby NR Systems during FM recording from some tuners. To prevent this, set the switch to ON.

OFF:

The FILTER indicator in the operating display goes off. Normally, leave the switch in this position.

ON:

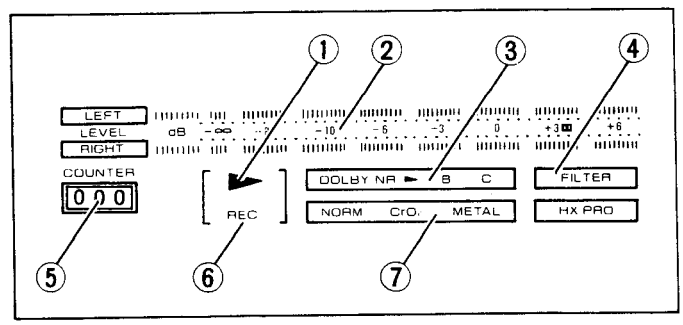
The FILTER indicator in the operating display lights up. The MPX FILTER switch can be set to ON only when the DOLBY NR ON/OFF switch is in the ON position.

⑰ REC LEVEL control

⑱ Rec BIAS control

It is possible to adjust the bias according to the tape used and the source to be recorded.

OPERATING DISPLAY



① Play indicator

►: Lights up during playback and recording.
The indicator flashes slowly in the pause mode and fast during music search.

② LEVEL meter

LEFT : Left channel.
RIGHT : Right channel.

③ DOLBY B/C NR indicator

Indicates the selected Dolby Noise Reduction Systems, B-type or C-type.

④ MPX FILTER indicator

Lights up when the MPX FILTER switch is pressed and the Dolby NR Systems are ON.

⑤ Tape COUNTER

⑥ REC indicator

Lights up during recording.

⑦ Tape selector indicator

Shows the position of the TAPE SELECTOR switches.